

## **APPENDIX A**

### **Research Question Matrix**

## The Relationship Between Study Research Questions, Interview Questions, and Data Sources

RESEARCH QUESTIONS/Topics	DATA SOURCES								
	CD	HC	PIC	MH	NC	BM	PAR	RR	MO
<b>1A. What are the current procedures used by Head Start grantees to provide/obtain:</b>									
<b>a. medical/dental health screenings:</b>									
Who is responsible for scheduling screenings?	✓	✓		✓					
What screenings are completed?		✓		✓				✓	
When are screenings completed?								✓	
Who conducts the screenings?		✓		✓					
How are parents informed of the results of the screenings?		✓	✓				✓		
<b>b. immunization records and immunizations:</b>									
What immunizations have 4-year-old children completed?		✓					✓	✓	
What is the process for determining whether additional immunizations should be administered to a 4-year-old child?		✓						✓	
How is information about immunizations received prior to enrollment in Head Start obtained and recorded?		✓					✓	✓	
How does Head Start involve parents in the process of ensuring that their children are up-to-date in immunizations?		✓					✓		
What parent education about immunization is provided?		✓	✓				✓		

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<b>c. referrals</b>									
What referrals are provided to parents by Head Start staff?		✓		✓			✓	✓	
Is there a formal referral process for medical, dental, or mental health treatment?		✓		✓					
Who are the Head Start staff involved in referrals for medical, dental, or mental health treatment?	✓	✓		✓					
Do parents seek referrals for medical, dental, or mental health treatment for their children?							✓		
<b>d. treatment</b>									
How are parents informed of treatment needs indicated by screenings completed through Head Start?	✓	✓	✓	✓			✓		
What kinds of medical, dental, or mental health treatments are most often needed for Head Start children?		✓		✓			✓	✓	
How are treatments for Head Start children arranged?		✓		✓			✓		
How are parents involved in the delivery of health services needed for Head Start children?	✓	✓	✓	✓			✓		
How does Head Start manage follow-up to ensure that indicated health treatment is received?	✓	✓		✓			✓	✓	
What health service provider networks are used by Head Start and parents to obtain necessary health services?		✓		✓	✓		✓		
What payment arrangements are used to provide needed health treatments?		✓					✓		
What barriers face programs and parents in obtaining needed treatments for children?	✓	✓	✓	✓	✓		✓		

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<b>1B. How are health services documented?</b>									
What health records are maintained by Head Start?	✓	✓						✓	
What documentation of health screenings is maintained in the individual health records?		✓						✓	
How aware are parents about the health screenings completed on their children?							✓		
What documentation of medical, dental, or mental health treatments is maintained in the individual health records?	✓	✓		✓				✓	
How are parents involved in the documentation of needed treatments?	✓	✓		✓			✓		

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<b>2A. What are the major health problems and risk factors present within the four health domains when a child and family enroll in Head Start?</b>  What preexisting medical, nutritional, dental and mental health problems are most frequently identified in Head Start children through physical examinations and screenings?	✓	✓		✓			✓	✓	
What health problems are identified in Head Start children during the year through teacher or parent observation?		✓					✓	✓	
What are the family and community health risks that are faced by Head Start families and programs?	✓	✓	✓	✓					
<b>2B. How does the range and severity of health problems and service needs differ across Head Start programs and populations (e.g. urban/rural, geographic region, etc)?</b>  What are the most frequent health problems and risks in each of the program and population strata?		✓		✓			✓	✓	
What is the overall cultural and economic background of Head Start families served by each of the programs?							✓	✓	

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3A. How promptly are the following provided across the four health domains?									
a. health screenings and examinations									
How long after first attendance at the Head Start center are health screenings and examinations provided?								✓	
Does the promptness of Head Start screenings vary by test (or by geographic region, urban/rural population, etc.)?								✓	
b. immunization status and updates									
How long after first attendance at the Head Start center are immunization record reviews completed?								✓	
When a review of immunization records indicates that updates are needed, what period of time is required to bring immunizations up-to-date?							✓	✓	
Does the proportion Head Start children immunized up-to-date vary by geographic region, urban/rural population, etc.?								✓	
c. referrals and treatments									
How long after indication that treatment is needed are initial appointments completed?		✓					✓	✓	
How long after indication that treatment is needed are treatments completed?		✓					✓	✓	
Does the completion rate for necessary treatments vary by the type of treatment (or by geographic region, urban/rural population, etc.)?							✓	✓	

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<b>3B. What is the range of treatments which are indicated and provided?</b>		✓		✓			✓	✓	
<b>3C. What follow-up mechanisms exist to document that referrals result in provision of recommended health services?</b>									
What is the process by which indicated treatments are tracked by Head Start staff?	✓	✓							
What is the process by which indicated treatments are documented in the child's health records?		✓		✓				✓	
How are Head Start staff involved in the arrangement for and completion of indicated treatments?		✓	✓						
How are parents involved in ensuring that Head Start documentation of treatments is complete?		✓		✓			✓		
<b>4A. What are the Head Start Health Component staffing patterns?</b>									
What are the roles of the Health Coordinator and the Head Start Center Director in administration of the Health Component?	✓	✓							
What mechanisms are present that help staff work together to provide the necessary health services and programs for children?	✓	✓		✓	✓				
What is the staff management organization within the Health Component?	✓	✓							
How many staff and staff hours are associated with the Health Component?	✓	✓	✓	✓	✓				

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<b>4B. What are the staff credentials and training for each position?</b>									
What are the education and experience credentials for each staff position with a role in the Health Component?	✓	✓	✓	✓	✓				
What training is completed by staff with a role in the Head Start Health Component?	✓	✓	✓	✓	✓				
<b>4C. What are the institutional mechanisms (e.g., community clinics vs. individual professionals) for the provision of health services in the medical, dental, nutritional, and mental health domains?</b>									
What service agencies provide health screening and treatment services for Head Start children?		✓		✓	✓				
What health care providers participate in screening and treatment services for Head Start children?		✓		✓					
What funding agencies or mechanisms provide resources for Head Start screening and treatment services?		✓				✓			
How does Head Start work with parents to obtain screening and treatment services (e.g. selection of providers, making appointments, transportation to health care services, etc.)?		✓	✓	✓			✓		
Who are the members of the Head Start Health Services Advisory Committee and how is it managed?	✓	✓					✓		

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<b>5. What community resources have Head Start programs utilized to meet the health needs of children and their families?</b>  What community resources are employed in the provision of health screenings for Head Start children?		✓		✓					
What community resources are employed in the provision of health treatments for Head Start children?		✓		✓					
<b>6. What amount of Head Start program funds are used to pay for health services?</b>  What proportion of the Federal and total Head Start budget is allocated to staffing the Health Component? What are the total staff costs for this component?						✓			
What portion of the Federal and total Head Start budget is allocated to the Health Component for health screening? What are the total costs for these activities?						✓			
What portion of the Federal and total Head Start budget is allocated to the Health Component for health treatment? What are the total costs for these activities?						✓			
What portion of the Federal and total Head Start budget is allocated to food services for children and parents? What are the total costs for these activities?						✓			
What portion of the Federal and total Head Start budget is allocated to health education for children and parents? What are the total costs for these activities?						✓			
How are payments and reimbursements for Head Start health screenings and examinations arranged?		✓					✓		
How are payments and reimbursements for Head Start health treatments arranged?		✓					✓		

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<b>7A. What barriers (e.g., transportation, limited availability of accessibility of health providers), do families and programs face in attempting to access community and state health resources?</b>  What barriers are identified that inhibit access to preventive health services for Head Start children?							✓		
What barriers are identified that inhibit access to health treatment services for Head Start children?	✓	✓	✓	✓	✓		✓		
<b>7B. Are there specific cultural factors (e.g., language) within the four health domains that serve as barriers to health care utilization?</b>	✓	✓	✓	✓	✓		✓		
<b>8. What health education activities for children and parents are conducted through the Head Start program?</b>  What health education activities for Head Start children are conducted in the classroom or during mealtimes?		✓		✓	✓		✓		✓
What health education activities for parents are conducted under the auspices of the Head Start program?		✓	✓	✓	✓		✓		
What kinds of parent participation occurs in the health education and service activities of the Head Start program?					✓		✓		

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## **APPENDIX B**

### **Study Instruments**

## **Study Instruments**

Center Director Interview with Response Cards\*

Health Coordinator Interview with Response Cards

Mental Health Coordinator Interview with Response Cards

Nutrition Coordinator Interview with Response Cards

Parent Involvement Coordinator Interview with Response Cards

Budget Manager Interview Preparation Sheet

Parent Interview (English Version) with Response Cards

Parent Interview (Spanish Version)

Child Health Record

Meal Observation Protocol

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\*Response Cards were used in conjunction with the interview forms in order to allow respondents to read possible answer choices as the interview questions were asked.

## **Center Director Interview**

## **Health Coordinator Interview**

## **Mental Health Coordinator Interview**

## **Parent Involvement Coordinator Interview**



## **Nutrition Coordinator Interview**

# **Budget Manager Interview Preparation Sheet**

## **Budget Manager Interview Preparation Sheet**

"The Budget Manager Interview Preparation Sheet" was used as a questionnaire, not an actual interview. It was decided during the pilot test that the information requested in the form was not readily available during an interview. Therefore, the data collection staff was instructed to submit the preparation sheet to the Budget Manager for completion and mailing back to the research office.

## **Parent Interview (English Version)**

**Parent Interview  
(Spanish Version)**

## **Child Health Record Review**

## **Meal Observation Protocol**

## **APPENDIX C**

### **Parent Consent Form**



## **A Descriptive Study of the Head Start Health Component**

**U.S. Department of Health and Human Services  
Administration on Children, Youth and Families**

### **Consent To Participate in Research**

**We are talking to parents with children in the Head Start program about Head Start health services. We want to find out how these services affect you and your child. Our goal is to describe the kinds of health services offered to families in the Head Start program and how they are used.**

**An interviewer will ask you questions about the health of your child and about the health services offered by your Head Start program. We want to know how your child received health services. The interview will only take about 30 minutes. You may ask questions at any time during the interview. You may stop the interview at any time. Following the interview, we will review the information in your child's Head Start health file (you do not need to be present for this). You will not harm your relationship or your child's relationship with the Head Start program if you do not agree to the interview and record review, or if you stop the interview.**

**We guarantee that we will protect your privacy. Your answers will not be shared with any other Head Start families or with staff from your Head Start program. No information will be given out that can identify you. Your name and an identification number will be kept under lock and key. We will destroy any papers containing names and other identifying information as soon as they are no longer needed. Interviewers understand that your answers are sensitive and private. They will discuss answers without using your name, and only with others working on this study.**

**This project meets all the United States Department of Health and Human Services (DHHS) regulations for projects involving human subjects.**

**I have read the above description of this project (or it was read to me by**

\_\_\_\_\_). Anything I did not understand was explained to me by

\_\_\_\_\_, and I had all of my questions answered to my satisfaction.

**I agree to participate in this Project.**

**(Print):** \_\_\_\_\_  
(Name of Parent)

**(Signed):** \_\_\_\_\_  
\_\_\_\_\_  
(Name of Parent) Date

**(Signed):** \_\_\_\_\_

\_\_\_\_\_  
(Name of Project Staff)

Date

**Thank you for agreeing to help us. If you have a copy of your child's immunization record, please bring it with you to the interview.**

## **APPENDIX D**

### **Internal Staff Follow-up Survey**

## **APPENDIX E**

### **Literature Review**

# **Literature Review**

## **1.1 Overview of the Head Start Health Component**

As this project was initiated, it was evident that there was a significant amount of literature available on the status of children's health. Unfortunately, a similar level of literature regarding the methods to assure that health services are available for and accessed by children and families was not available. This literature review was completed for this study to provide a background for individuals wanting to know where this project complements the information that is already available. It also summarizes some previous national studies completed on the Head Start Health Component. The information in this review is a more detailed summary of information already presented in the individual section overviews (Volumes I and II).

## **1.2 Program Models for Health Care and Health Services Delivery**

A thorough review of the literature of the past two decades turns up very little on program models for health care and health services delivery as applied to Head Start programs. The descriptive study of the Head Start Health Component (of which this literature review is a part) gathered this information through primary data collection. Following a review of Head Start program documents, personal communications with Administration on Children, Youth and Families (ACYF) staff, and other anecdotal information, The CDM Group developed constructs which suggest that Head Start Health Coordinators connect children to the health care system through some combination of two models: center-based services and community-based services. Through either model, Head Start staff act as brokers for health services for the children. Each Head Start center uses an approach based on these models to facilitate access to health care for individual families and communities.

### **1.2.1 Center-Based Services**

Center-based service models are characterized by the direct solicitation of service providers by the Head Start Health Coordinator on behalf of the child. The Health Coordinator can make arrangements for visiting health care professionals to provide services at the center, usually on a volunteer basis or through reimbursements using Head Start funds. These services typically include screenings for vision and hearing, which are easily

administered in a nonmedical facility.

### **1.2.2 Community-Based Services**

Community-based service models focus on enabling parents to bring their children to service providers. The Health Coordinator identifies opportunities and provides parents with the information necessary to make and keep appointments. For example, if the local Department of Health is offering free immunizations, Head Start parents will be notified of the time and location. In other instances, the Health Coordinator will assist parents in obtaining follow-up treatment for conditions identified through a screening. Parents receive assistance in identifying providers, means of transportation, and childcare opportunities. Payment for services may come from a number of sources, including private insurance, Medicaid funds, and Head Start funds, or services may be provided at no cost to the patient. In these models, the Health Coordinator serves as a broker between community health centers, clinics, private providers, and the Head Start parent.

A “systems approach” for improving child development services to children and families views the child against the backdrop of his or her environment. Effective child development interventions occur when the Head Start teacher is connected to or aware of the external systems (family environment, neighborhood, housing) affecting the child. An application of the systems approach to the delivery of health services to Head Start children is similar to the community-based services approach described above. The health care needs of the child are resolved based on an understanding of all the interconnected systems in his or her environment, including family financial, transportation, and other issues, available health resources in the community, and the effective transfer of health care information from the Head Start Health Coordinator to the family member responsible for connecting the child to the system. Health care needs are met when each system is negotiated correctly (Scott, 1993).

Regardless of the method used to connect children with health services, early intervention programs, including those provided by Head Start, have been effective in ensuring that children’s health problems are identified, referrals are made, and treatment is provided where necessary (Figures, 1977). However, the lack of *recent* information about the way Head Start provides health services is a concern. In order to determine how Head Start, a comprehensive child development program developed in the 1960s, will meet the needs of low-income children into the next century (Bell & Jones, 1993), descriptive information on the

provision of services is necessary.

## **1.3 Health Status of Low-Income Preschool Children**

### **1.3.1 Medical Health**

In many areas, the health of the Nation's children has improved in recent decades. Promising statistics include decreasing infant and child mortality rates, reduced incidence of preventable childhood diseases, and reductions in the number of cases of dental caries. However, poverty has a pervasive effect on the health of children. Low-income children are more likely to be affected by virtually every threat to their health, and when they do become ill, they get sicker and die at higher rates than other children (Starfield, 1992).

In children 1 to 4 years of age, mortality rates are declining in the United States, although deaths due to some specific causes (for example, child abuse and acquired immunodeficiency syndrome [AIDS]) are increasing. The major causes of death in this age group are injuries from accidents, congenital abnormalities, malignant neoplasms, homicide, and heart disease (Zill & Schoenborn, 1990). Each of these conditions has been shown to be, to some extent, more prevalent among low-income populations.

Accidents are the leading cause of death among children in this country. Of growing importance to the health of young children is the fact that some 43% of cases of **child abuse and neglect** occur with children under 6 years of age. The disproportionate rates of child abuse observed in low-income families are believed by some to be a reporting phenomenon (authorities may be more likely to report suspected child abuse if the family is of a low-income status). However, others believe that differences may be due to variations in discipline and control of violence in low-income families or that they may be a function of interpersonal stress related to the conditions of living in poverty.

Attention to health conditions related to the physical and social environment has recently increased, particularly for inner-city children. These include asthma, tuberculosis, lead poisoning, infection with human immunodeficiency virus (HIV) or other sexually transmitted diseases during birth, and conditions related to maternal behavior during pregnancy. Other health conditions, such as physical injury and emotional problems, may be the result of stress caused by primary or secondary exposure to community violence.

**Asthma** is a pulmonary condition that is controllable through a variety of techniques and medication, and it is the most common childhood chronic illness. Emergency room visits and hospitalizations for acute asthma attacks have increased throughout the Nation during the 1980s. Although the exact etiology of asthma is unknown, acute attacks are commonly brought on by the environment (for example, dust, insects, or weather) and stress (including exercise).

Some evidence suggests an interaction between asthma and poverty. For example, among children under 5 years of age, asthma was more prevalent among families with lower income, larger size, and fewer rooms in their homes (Halfon & Newacheck, 1993; Adams & Hardy, 1989). Children from low-income families were also more likely to be hospitalized because of asthma (Halfon & Newacheck, 1993). Mothers with less education who smoked also tended to have more children with asthma, and asthma was seen at a higher rate among African American males (Adams & Hardy, 1989).

During the past several years, the previously steady decline in **tuberculosis** has reversed (Stansberry, 1990). Fueled by increasing poverty, homelessness, immigration, drug abuse, declining prevention programs, and the HIV epidemic, its incidence in the United States has increased dramatically (Agrons, Markowitz, & Kramer, 1993). The disease remains concentrated in the growing population of socioeconomically disadvantaged persons, and tuberculin screening is recommended for children who are contacts of adults at risk for the infection (Levin, Gums, & Grauer, 1993). Given these trends, the number of Head Start children requiring screenings for tuberculosis will likely increase. The Head Start health standards require tuberculosis screening if a child has had contact with a known case of tuberculosis, if a child presents symptoms consistent with tuberculosis, or if a child is living in a neighborhood or community in which the tuberculin sensitivity in school-age children is known to exceed 1%.

According to Mushak (1992), the principal environmental health issue for U.S. children is pervasive **lead poisoning** from many years of lead contamination. Although the effects of lead poisoning have been known for many years, only recently has it been understood that lead exposure levels previously thought to be harmless have pervasive behavioral effects. In 1990, an estimated 3 million children had blood lead levels of 10 mg/dl of blood or higher, levels which can adversely affect development and cognitive ability (Binder & Matte, 1993) and cause preventable learning disorders (Feldman & White,



1992). A recent study showed that reductions in blood lead levels were associated with increases in cognitive ability (Ruff, Bijur, Markowitz, Yeou-Cheng & Rosen, 1993).

The primary source of lead poisoning is still lead-based paint, particularly in older urban housing (Chao & Kikano, 1993). Although lead-based paint has been banned from residential use since 1978, roughly 74% of the houses built before 1980 have lead-based paint and lead-contaminated soil in their yards (Binder & Matte, 1993). Children living in poor housing are at high risk of exposure to toxic levels of lead. Moreover, among children aged 6 months to 5 years, the mean blood concentration of lead is associated with family income (Mahaffey, Annest, Roberts, & Murphy, 1982). Children living in inner cities have higher lead concentrations than other children. The prevalence of lead poisoning is the highest among African American children living in low-income, inner-city areas (Guthrie & McNulty, 1993). In recognition of this widespread problem, the Centers for Disease Control and Prevention (CDC) issued new recommendations lowering the acceptable blood lead level and suggested a classification system of various lead levels to help determine the proper treatment. In addition, the CDC now recommends initiating screening lead levels for high-risk children as young as 6 months (CDC, 1991). Although Head Start health standards suggest screening in communities where lead poisoning represents a community health problem, these standards have not yet adopted the CDC recommendations for screening.

Another increasing threat to the Nation's children is the increasing rate of **HIV** infection and **AIDS** in infants. Women and children are the segment of the population with the fastest growing rate of new HIV infections. African American and Hispanic children are disproportionately represented in AIDS cases. African American children constitute 15% of the population under the age of 15, but account for 52% of reported pediatric AIDS cases in the United States. Hispanic children make up only 9% of the youth population, but represent 25% of the pediatric AIDS cases. In 1989, the rate of infants born HIV-positive was 1.4 per 1,000 live births (Children's Defense Fund, 1991).

Of the 4,710 children in the United States diagnosed with AIDS, 87% of the number of HIV exposures were traced to mothers with or at risk for HIV infection, according to June 1993 data compiled by the CDC (CDC, 1993). In addition, behaviors that represent HIV risks often place children at risk for other conditions that threaten their life and quality of life. Consumption by pregnant women of marijuana, heroin, or cocaine (including crack) is associated with a variety of fetal effects, including intrauterine growth retardation, preterm

labor, and congenital abnormalities. Some infants born to mothers who use heroin suffer from withdrawal symptoms after they are born. Drug use also is a major factor in the increase of **sexually transmitted diseases**, which may cause health problems in newborns and young children. For example, the current high levels of drug use have been cited as a major factor in congenital syphilis. According to the CDC, the 691 cases of congenital syphilis reported in 1988 represented the highest level since the early 1950s (Nanda, Feldman, Delke, Chintalapally, & Minkoff, 1990).

According to the 1991 National Household Survey on Drug Abuse, over 4.5 million of the nearly 59.2 million women of childbearing age (15 to 44) had used an illicit drug in the previous month. Of these women, more than 600,000 had used cocaine and 3.3 million had used marijuana. The highest percentages of crack and other hard-core drug abuse were among African Americans, the unemployed, high school dropouts, and inner-city residents (Zigler et al., 1994). The relationship between the abuse of illegal drugs and poverty is not clear, and it cannot be stated that this behavior disproportionately affects low-income children. Studies conducted in inner-city hospitals have shown high rates of use among low-income families, but these hospitals serve primarily low-income individuals. Estimates of drug-exposed newborns range from 2% to 42%, depending on the hospital studied (General Accounting Office, 1990; Zuckerman et al., 1989).

Even the legal behaviors of cigarette smoking and alcohol use are associated with **fetal and infant mortality, low birth weight, and premature birth**. The risk of **sudden infant death syndrome** is higher among infants of smoking women who have low hematocrit readings during pregnancy. Smoking is linked with poverty, and its consequences can be expected to fall disproportionately on low-income persons. Among pregnant women who gave birth or suffered a spontaneous abortion in 1982, 37% of low-income women smoked cigarettes, as opposed to 29 to 30% of women with higher incomes (Pamuk & Mosher, 1988). Women receiving Medicaid were more likely than non-Medicaid women to smoke during pregnancy. In addition, high levels of alcohol consumption during pregnancy are associated with spontaneous abortion, preterm labor, intrauterine growth retardation, congenital abnormalities, decreased mental and motor performance, and fetal alcohol syndrome. Although alcohol consumption is not as clearly linked to poverty as illicit drug use, it nevertheless remains a significant health concern.

Over the past 40 years, the incidence of **vaccine-preventable diseases** has been

dramatically reduced in the United States. Nevertheless, thousands of children are not immunized against preventable infectious diseases (CDC, 1990). In 1990, only about 70% were immunized against measles, mumps, and rubella. In inner-city communities, only about 50% had received immunization against those diseases (CDC, 1990).

The danger represented by low immunization rates can be best shown by the example of measles outbreaks. By 1983, the incidence of measles had been reduced from greater than 300,000 cases in 1960 to fewer than 2,000. Beginning in 1988, a rapid rise in childhood and adolescent cases of measles began, peaking in 1990 at 27,000 (Rosenbaum, 1992). Immunization programs targeting students entering middle school and college began in 1990, and the incidence of measles again declined rapidly to a 1992 level of fewer than 5,000 cases. Nevertheless, most cases of measles continued to be reported in inner-city families. Children under 5 years of age accounted for 34% of the measles cases reported in 1992. Individuals who had not been vaccinated or who were inadequately vaccinated accounted for 68% of these cases; 47% of these unprotected individuals were between the ages of 16 months and 4 years (CDC, 1990). Although parents share the responsibility for having their children immunized, several studies have found that health care providers often miss immunization opportunities when children are in their care (Hutchins, Gindler, Atkinson, & Mihalek, 1993; Szilagyi et al., 1993).

As new vaccines have become available, childhood immunization recommendations have become increasingly complex. Recently, new vaccines against *Haemophilus influenzae* type B conjugate and hepatitis B (both requiring multiple administrations) have been added to the schedule for children under 5 years of age. Further, new information about the performance of vaccines administered decades ago has altered the schedule for immunization. Originally, *Haemophilus influenzae* type B vaccine was administered in a single dose, but it is now understood that adequate protection requires several administrations. Modifications to the immunization schedule are widely promulgated among physicians, particularly pediatricians. As with many medical issues, however, the lag between the availability of new information and its application in the field is considerable. The Head Start Program Performance Standards, for example, have not been updated to reflect the current recommendations of the American Committee on Immunization Practices. As discussed below in the review of current studies related to compliance with the Head Start Program Performance Standards, differences between national recommendations and Head Start standards can lead to confusion in the understanding and interpretation of data. The

Performance Standards, realistically, cannot be updated at the same pace as the medical recommendations.

Each of the above conditions represent additional challenges for Head Start providers. Except in severe cases or acute stages, the behavioral manifestations of child abuse and neglect, asthma, tuberculosis, lead poisoning, HIV infection, and fetal drug and alcohol syndromes are relatively subtle but often treatable. They include hyperactivity, attention deficit disorders, and aggressive behavior, which can be particularly disruptive to the individual child's learning and can interfere with the learning experiences of classmates, as well. Head Start programs must be particularly sensitive to the needs of their communities in screening, diagnosing, and treating such disorders, not only because of their immediate importance for the child and the classroom, but also because each of these disorders represents a chronic condition that will have a cumulative impact on the individual's quality of life if it is not recognized and treated as early as possible. In addition, Head Start providers must be scrupulous in their adherence to immunization guidelines to guard against dangerous outbreaks of vaccine-preventable diseases in the children and in the communities.

### **1.3.2 Dental Health**

Few studies of oral health in the United States include analyses of the economic status of children under the age of 6 years. Studies of older subjects, however, indicate that dental disorders are higher among low-income children than other children. According to the Children's Defense Fund (1991), in 1987, 53% of children between 6 and 8 years of age had cavities and 27% had untreated cavities. The CDF also indicates that "low-income, Native American, African American, Latino, and migrant children, and children with disabilities generally have poorer dental health because they are less likely to have regular dental care. Only ten percent of dentists accept patients enrolled in Medicaid, and millions of low-income families with children live in communities that have no dentists. In 1987, 70% of low-income children had cavities, and 43% had untreated cavities."

The prevalence of dental caries in Head Start children has been reported in four recent studies (Barnes, Parker, Lyon, Drum, & Coleman, 1992; Jones, Schliffe, & Phipps, 1992; Kaste, Marianos, Chang, & Phipps, 1992; Katz, Ripa, & Petersen, 1992). In Region VI Head Start programs, a study of baby bottle tooth decay found that less than half of the children were caries free (no caries, no restorations) and that children in rural areas were less likely than children from nonrural areas to achieve that status. In the Virgin Islands, 41% of the

children were found to have caries (Katz et al., 1992). Whereas dental hygienists and dentists had strong agreement on the number and location of caries, agreement between dental hygienists and trained Head Start staff was less satisfactory. In American Indian children attending Head Start in 1977–78, a significant relationship was found between caries at that time and 10 years later (Kaste et al., 1992). Finally, Head Start children in Alaska were examined (Jones et al., 1992). Forty-five percent of the sample were determined to be in need of dental restorative treatment. On average, children in rural areas needed treatment on 2.8 teeth, while those in urban areas needed treatment on 0.8 teeth.

In the last study, Jones et al. (1992) found that the potential cost for treatment of the Head Start children across Alaska was estimated at over \$600,000 for the 1,475 children in the program. This is a key consideration for the Head Start program, for it has been reported that African American and Hispanic families are less likely to carry dental insurance and are less knowledgeable regarding good dental practices (Aday & Forthofer, 1992). A further consideration for Head Start in treating these children is that the use of Medicaid funds to cover the cost of dental treatment varies by practice type and geographic location. Although Medicaid is not generally accepted, its use is typically higher in pediatric practices (McNight-Hanes, Myers, & Dushku, 1992).

Thus, the data suggest that significant numbers of Head Start children require dental treatment when they enter the program. The Head Start Program Performance Standards require that the program arrange for treatment, yet there appears to be a high likelihood that the availability of providers and adequate services for Head Start children is an issue of concern for programs, particularly those in rural areas.

### **1.3.3 Nutrition**

The link between health and nutrition is well recognized for all people. Poor nutrition during childhood can have lifelong effects on the health and functioning of the individual. Nutritional problems (typically, iron deficiency anemia) are often associated with poverty. Children from low-income families are generally found to have lower values than other children for height, weight, and triceps skin fold thickness (Rosenbaum, 1992). There is no doubt that childhood hunger has increased in the past decade. Estimates indicate that from 2 million to 5.5 million children in this country are hungry (Community Childhood Hunger Identification Project, 1991).

Poor nutrition can contribute to childhood obesity in instances where low-cost food (which is often high in fat and caloric content) is the obvious choice over no food at all. Studies of growth trends among low-income children have provided some mixed results, and suggest the need for targeted research in this area. The Second National Health and Nutrition Examination Survey (NHANES II) data indicate that low-income children (ages 6 months to 10 years) have a greater prevalence of low height for age; however, these children are not more likely to be overweight than children from middle-class families (Yip, Scanlon, & Trowbridge, 1993). Other data suggest that low-income school-age children and adolescents included in the CDC's Pediatric Nutrition Surveillance System (PNSS) have a greater prevalence of obesity than their counterparts in the middle-class population (Yip et al., 1993). Childhood obesity may also be linked to ethnic background. PNSS data show that low-income Hispanic children exhibit a consistently higher weight-for-height status than comparable children in the White, African American, and Asian ethnic groups (Yip et al., 1993). A study of U.S.-born low-income Hmong children showed evidence of early obesity, especially among 3- and 4-year-old children (Himes, Story, Czaplinski, & Dahlberg-Luby, 1992).

Marian Zeitlin (1991) has identified factors associated with above-average physical growth in impoverished environments. Children with healthy growth patterns ("positive deviants") receive more high-quality foods, physical interaction, affection and praise, and verbal and environmental stimulation. Physical growth was found to predict cognitive development, health, and social adjustment. Feeding practices related to growth included permitting the child to control the length of feeding, not displacing appetite by giving frequent sweets, introduction to a variety of foods, and encouragement of eating without a power struggle. Many of these characteristics are found in the Head Start nutrition objectives.

In a recent report on self-evaluation and improvement in Head Start nutritional services, Wardle and Winegarner (1992) found that an assessment of nutrition practices in Head Start programs identified a number of deficiencies, including high levels of sugar, salt, fat, and refined grains in program-provided foods; modeling of poor nutritional behavior by staff; lack of a classroom nutritional component; and lack of nutrition education for parents. A variety of plans, programs, and activities were initiated to bring the program into compliance with the Head Start nutrition objectives.

### **1.3.4 Mental Health**

Regarding the mental health of the Nation's children, it is estimated that 12 to 15% suffer from one or more mental disorders severe enough to require treatment (Office of Technology Assessment, 1986). The number of children who receive mental health care in a given year has increased significantly since 1980, but the Office of Technology Assessment estimates that up to 70% of the children and adolescents in need of psychiatric treatment are not receiving such care. Left untreated, mental and emotional disorders can lead to impaired social functioning, adaptation, and productivity. Disruptive behavior disorders (for example, attention deficit hyperactivity disorder, conduct disorder) are the most frequent forms of childhood mental illness. However, over 5% of all school-age children suffer from depression, anxiety disorder, or serious learning disabilities. Comorbid disorders that pose threats to both physical and mental health also are common among children.

Low-income children are believed to experience more mental and emotional problems than other children (Gould, Wunsch-Hitzig, & Dohrenwend, 1981). Poverty places children at greater risk for "a host of biologic insults that threaten the integrity of the central nervous system," and epidemiologic studies indicate an association between organic brain dysfunction and psychiatric disorder in children (Hertzog, 1992, p. 25). Adams & Hardy (1989) found that delays in growth and development were reported for 4% of all children and that rates of such disorders were higher in families with incomes under \$10,000 per year (7%). Learning disabilities are reported in 2% of children aged 3 to 5 years, but in 4% of children from low-income families.

Based on findings from a longitudinal study by Werner and Smith (1989) of children born on Kauai, Hawaii, perinatal complications "are not consistently related to later mental and psychological development . . . . Adverse medical conditions and adverse social conditions act synergistically to worsen the fate of children who are doubly exposed" (Hertzog, 1992, p. 27). Economic stress, social alienation, homelessness, parental substance abuse, parental mental disorders, child abuse and neglect, and community violence are all risk factors that can lead to family disorganization and emotional and mental disorders among children. Recent studies of homeless children, for example, have found that preschool shelter children have significantly higher rates of behavioral and emotional symptoms when compared with children of similar backgrounds who live in homes (Hertzog, 1992).

A child with one or more risk factors may develop without problems, but each additional factor increases the likelihood of a mental disorder (Public Health Service, 1991).

In the Kauai study, two out of three children who were at risk because of poverty, perinatal stress, poor parental skills, or troubled family environments developed subsequent behavior, learning, or mental health problems. Studies of resilient children (the 1 out of 3 who were also at risk for developing emotional or mental disorders, but who went on to develop healthy, competent, and caring personalities) indicated that there are ways to reduce the effects of these risk factors and protect vulnerable children (Werner & Smith, 1989).

The results from a longitudinal study of the Ypsilanti Perry Preschool Project suggest that high-quality preschool interventions can have lasting effects on a child's resiliency and ability to cope in later life (Weikart, 1987). The study began in 1962, with 123 low-income African American children who were identified as being at risk of failing in school. These children, from a single school district in Ypsilanti, Michigan, were randomly divided into an experimental group, who attended a high-quality preschool program as 3-year-olds, and a control group, who did not attend preschool. The preschool program focused on developing each child's ability to plan, carry out, and review learning activities and to develop a sense of responsibility and independence. Socioeconomic, scholastic, employment, criminal activity and other data on these children, now adults in their early 30s, were collected annually at ages 3 to 11, and at ages 14, 15, 19, and 28. Study results as of age 19 show positive outcomes for those who attended the preschool program: fewer are classified as mentally retarded (15% versus 35%), more have completed high school (67% versus 49%), more hold jobs (50% versus 32%), more are satisfied with their work (42% versus 26%), fewer are arrested for criminal acts (31% versus 51%) and fewer are on public assistance (18% versus 32%). Although the focus of the Ypsilanti Perry Preschool Project was educational, the positive outcomes for participants suggest healthy mental development, which enables the program graduates to master a variety of life skills.

The Head Start program, through early intervention, can promote mental health and resiliency. Head Start mental health professionals can observe and identify children with atypical behaviors, as well as train Head Start staff to learn to identify these behaviors. Referrals for diagnostic evaluations can screen out physical causes of atypical behavior and assess family histories for multiple risk factors. After assessment and diagnosis, mental health professionals can, when appropriate, develop strategies for Head Start staff to work with the child (such as ways to help the overly shy or the overly aggressive child), work with the parents, and make referrals to services drawing upon community resources (Head Start Bureau, 1992).



## **1.4 Access to Health Care**

Although much is known about how to improve the health of children and about how to design programs that are appropriate for and accessible to low-income families, over 30 million Americans, many of them children, remain completely uninsured, and a similar number live in areas designated as medically underserved (Rosenbaum, 1992). Over 2,000 communities lack even minimal access to physicians.

One third of low-income children (and over 40% of children living in working families) were uninsured in 1987 (Monheit & Cunningham, 1992). Nearly 20% of American children report no contact with a physician in the past year, according to the National Center for Health Statistics (Adams & Hardy, 1989). Low-income African American and Hispanic children are less likely to receive preventive or acute health care than other children. Moreover, children in families classified as “working poor” are, in some ways, at higher risk for poor health care than are children in families who are eligible for Medicaid. Because of the high cost of health care, many of the children of the working poor see a physician only when their condition is so severe that it cannot be ignored. There are a significant number of parents who lack a site for either regular preventive child health care or sick care and who take their children to an emergency room or an urgent care center (Fowler, Simpson, & Schoendorf, 1993). Data from a national survey indicated that, among children with asthma, those from low-income families had 40% fewer doctor visits and 40% more hospitalizations (Halfon & Newacheck, 1993).

### **1.4.1 Financial Barriers**

Much has been written about the financial barriers to obtaining health care, particularly their role as the driving force behind President Clinton’s proposed American Health Security Act (White House Domestic Policy Council, 1993). Social policy enacted through Medicare and Medicaid has attempted to facilitate access to care for adults and children living at or below the poverty line. These programs address health care financing, not health care service delivery, and are aimed at breaking down the most formidable barrier to accessing health services for low-income families (Hill, 1992).

Medicaid is a primary source of funding support for health services for Head Start children. Approximately two thirds of the children enrolled in Head Start were eligible for

Medicaid and received Early Periodic Screening, Diagnostic, and Treatment Program (EPSDT) services last year. As defined under the Omnibus Budget Reconciliation Act of 1989 (Public Law 101–239, sec. 6403), States must provide EPSDT services for Medicaid-eligible individuals under the age of 21. These services include comprehensive health and developmental assessments, laboratory tests, immunizations, and health education. In addition, visual, dental, and hearing services must be provided. All services must be provided at intervals which meet accepted medical and dental standards, or as necessary to diagnose physical or mental illnesses. Under EPSDT, States provide the medical screenings necessary for assessing the development of the child and further diagnosis and treatment for any condition discovered during a screening, as long as it is a Medicaid-covered service.

EPSDT services can be obtained from qualified, participating Medicaid providers. Qualifications can vary from state to state. Head Start Health Coordinators or other staff members provide families with outreach and referral services to physicians, clinics, hospitals, community health centers, rehabilitation centers, or other qualified practitioners. These practitioners or providers are reimbursed directly through Medicaid (ACF, 1991). Follow-up treatment for health conditions identified through an EPSDT screening must be provided as long as the service is covered under Medicaid. Unfortunately, not all health care providers are accessible through Medicaid. By 1989, only 77% of private pediatricians were treating any Medicaid beneficiaries, and 39.4% placed strict limits on the numbers of Medicaid-insured children they would take into their practices (Yudkowsky, Cartland, & Flint, 1990).

However, even when financial barriers are lifted, parents of Head Start children face a number of significant nonfinancial barriers to obtaining health care: geographical, legal, institutional, personal, linguistic, and cultural. Even families enrolled in the Medicaid system have difficulty keeping screening appointments which will be paid for by Medicaid, due to lack of transportation or lack of convenient appointment times, and they may have trouble obtaining treatment following a screening due to limited provider participation in Medicaid (Barger, 1993). It has been noted that “children, adolescents and women . . . are especially vulnerable to these barriers regardless of ability to purchase care at prevailing market prices” (Klerman, 1992, p. 171).

### **1.4.2 Legal Barriers**

Legal barriers to accessing health care can arise through unanticipated side effects of legislation which directs programs such as Medicaid and the Special Supplemental Food

Program for Women, Infants, and Children (WIC). For example, systemic requirements, such as completing forms, keeping appointments, and frequent recertification for the programs, may make it difficult for people to access or stay enrolled in such programs (Zigler et al., 1994). In other cases, where the primary intent of the law is to regulate matters unrelated to child health care, there may be unanticipated secondary impacts on access to health care for children. For example, the interpretation of some State laws on abuse and neglect that require substance-abusing pregnant women to be reported to child protective agencies, and the application to pregnant women of criminal laws regarding the distribution of drugs to minors may cause some women to avoid prenatal care (Larson, 1991). Laws which pressure an unmarried woman to reveal the identity of the infant's father are intended to help meet child support enforcement guidelines, but may actually keep the mother out of the health care system. In addition, undocumented mothers may avoid treatment for themselves or their children for fear of deportation (Klerman, 1992).

### **1.4.3 Geographic Barriers**

Studies have shown that there is a disproportionate distribution of providers throughout the Nation: metropolitan areas and high-income areas have a high distribution of providers, especially those in private practice, while rural areas face a combination of the scarcity of providers and long distances between those which are available (Klerman, 1992). Children living in rural and low-income areas must have transportation to access health care providers, posing problems for parents without cars or access to public transportation. In addition to impacting access to routine care, the distance between providers and children in rural or low-income areas can cause delays in securing emergency medical care quickly, potentially worsening the consequences of illness or injury.

Certain residential situations, such as homelessness or the lack of a permanent residence (for example, living doubled-up with other families or in welfare hotels) can contribute to the problem of accessing care. Many shelters are located in nonresidential areas, and shelter residents are afraid to leave for safety reasons.

Although studies of caries prevalence, baby bottle tooth decay, and oral health among Head Start children have found differences related to ethnicity, these studies point to economic status and rural location as stronger predictors of poor dental health than ethnicity or cultural factors. For example, although Native American children had a higher prevalence of baby bottle tooth decay than Whites, Hispanics, and African Americans, the study concluded that the prevalence for all groups among rural children was more than double that

among children with an urban residence (Barnes et al., 1992). Likewise, a study of Head Start children in Alaska suggests that although Alaska Native children in the study had higher dental disease rates than Head Start children in the continental United States, the differences could again be attributed more to rural location, cost, and access to care than to cultural factors (Jones et al., 1992). Access to fluoridated water is another residential factor cited to explain differences in caries prevalence in Head Start children of diverse ethnic groups (Louie, Brunelle, Maggiore, & Beck, 1990).

#### **1.4.4 Institutional Barriers**

Institutional barriers may be defined as the policies, practices, and attitudes of service delivery organizations which block access to care (Klerman, 1992). These barriers can include health care provider policies, for example, provider policies based on the financial status of the individual, or provider refusal to either accept Medicaid or to

adopt a sliding-fee schedule. Nonfinancial policies may limit access in managed care programs, such as preferred provider organizations and health maintenance organizations. These programs can limit or deny pediatrician referrals to subspecialists (Cartland & Yudkowsky, 1992), and they cover fewer services, such as prescriptions or mental health services for children with chronic illnesses, than are available under traditional health care plans (Horwitz & Stein, 1990). Further, managed care providers may be unaware of the service benefits to which children under Medicaid are entitled (Rosenbaum et al., 1988). Finally, a parent's switch to a preferred provider organization or a health maintenance organization may break down established health care relationships which are not easily replaced (Klerman, 1992). Often, the preferred provider or health maintenance organization requires the patient to be extremely proactive and knowledgeable about the system in order to successfully obtain the needed services.

Another institutional factor affecting access by Head Start children is health care marketing, which has been heavily focused on prenatal care rather than on children's health issues. Thus, parents who were inundated with information and options before the child was born may lose access to information on health care needs as their child grows (Hill, 1992).

#### **1.4.5 Provider Practices**

Barriers can arise as a result of the way in which health care organizations or practices

conduct business because of the impact this has on the way parents interact with the health care system. Office scheduling procedures often make it difficult for parents to set up timely appointments, especially at times convenient for working parents or parents who must arrange child care for other children. There may also be a lag between the day the appointment is made and the day a child can be seen. Practices which do not accommodate to parents who have poor reading skills or who do not speak or read English are not encouraging these parents to make appointments with a health care provider. Studies on the inappropriate use of emergency room services have documented these provider practices as some of the reasons people forgo regular health care options (Klerman, 1992).

In addition, private practitioners may be unwilling to accept Medicaid patients for a number of reasons: low fees; administrative and billing complexities of the Medicaid system; and problems with the Medicaid recipients themselves (Hill, 1992). Rural states “have more restrictive Aid to Families with Dependent Children (AFDC) programs and are less likely to adopt Medicaid eligibility and service options,” effectively reducing the pool of private providers available to participate in those areas (Rice, 1989).

#### **1.4.6 Cultural Barriers**

Cultural factors may impede access to health care for Head Start children by interacting with socioeconomic and other variables, although the evidence for this is mixed. One recent study focused on barriers which impeded health care access among Hispanics, specifically Mexican Americans (Estrada, Trevino, & Ray, 1990). The study used data from the Hispanic Health and Nutrition Examination Survey (HHANES), a survey conducted nationwide by the National Center for Health Statistics between 1982 and 1984. Study results showed that one third of the sample encountered barriers to obtaining health care, and that 73% of this group reported that the barriers actually prevented them from obtaining care. Reported barriers to care included (in rank order): cost of health care, long wait at the doctor’s office, long wait between making an appointment and being seen, inconvenient office hours, and loss of income caused by being away from work for a doctor’s appointment. With the exception of the cost of health care, which was again ranked first, the barriers which actually prevented respondents from obtaining care differed in rank of importance: needing childcare to attend the appointment, needing transportation, not knowing where to go, and losing income by being away from work. Few respondents in this study actually reported that cultural and linguistic barriers, such as lack of Hispanic or Spanish-speaking staff or encounters with disrespectful staff, were encountered when obtaining health care (Estrada et

al., 1990); however, such cultural barriers for Hispanics were noted in reviews by Hayes-Bautista (1979, 1992).

Since children are dependent upon adults to make and keep medical appointments for them, it can be assumed that all barriers encountered by adults will affect the health care of their families. Recent findings showed that uninsured African American and Hispanic children were more likely to live in single-parent households at poverty level and were less likely to get regular or frequent medical care as compared with uninsured white children (Cornelius, 1993). African American and Hispanic children were twice as likely to be rated in “fair or poor” health by their parents as were White children. Even among families with insurance, higher percentages of White children experienced routine visits for medical and dental care than did African American and Hispanic children in the study. This study reaffirmed that minorities are more likely to be impacted by barriers to health care access caused by financial status and lack of insurance than are other groups (Cornelius, 1993).

#### **1.4.7 Personal Factors**

Parents’ relevant beliefs about and attitudes toward health care and disease prevention can directly impact access to care for their children. A comparative study of birth outcome data among ethnic groups in California shows that Hispanic infants are less likely than White or African American infants to experience low birth weight, neonatal mortality, or infant mortality (Hayes-Bautista, 1992). The author attributes these positive results to a “cultural vitality” among Hispanic women, whose low rate of health risk behaviors (drinking, smoking, and drug use) and family structure combine to offset disadvantages in income, education, and access to the health care system (Hayes-Bautista, 1992). Another study of low-income African American and Hispanic women found significant differences in health behaviors and beliefs among the two groups (Sanders-Phillips, 1990). Hispanic women in the study exhibited more healthy lifestyle behaviors than did their African American counterparts, with the differences being explained by differing levels of several personal factors, including knowledge, attitudes, and beliefs about health promotion. African American women were more likely to report that race and God impacted their health and that they had little influence on their own health status. Hispanic women reported more appropriate amounts of sleep and limited alcohol and tobacco consumption. However, they also reported that God could impact their health “a lot.” The attitudes of the women in this study would directly impact their children’s access to health care, as both groups reported that the mother was the primary decisionmaker about health matters in the family (Sanders-Phillips, 1990).

Personal barriers to obtaining health care may include psychological problems related to drug use by parents or to racial or ethnic factors. Personal drug use is characterized by a lack of control over daily and future activities, fear of discovery, lack of motivation, and reordering of priorities, all of which reduce the likelihood of a child receiving routine health care and screenings (Klerman, 1992). Cultural factors discussed above, as well as other racial and ethnic factors, such as language barriers, conflicts among groups, and assimilation into the community, may interact with personal characteristics to inhibit parents from seeking care for their children (Riley et al., 1993). Other problems arise when a parent is unable to determine the correct office to call, for instance, where child health services may be listed under “pediatrics” or other technical terms the parent does not understand. If a parent only has access to a pay telephone, going through multiple numbers to make one appointment may be costly and lead to frustration.

Personal barriers encountered by adults impact on Head Start children, because the latter are dependent on adults for medical care except where they have access to school-based health programs. These personal barriers interact with other barriers to health care discussed above. For example, adults experiencing the effects of drug addiction will likely have greater difficulty navigating the financial and institutional barriers of the health care system to gain access and care for their children.

#### **1.4.8 Head Start System**

It is critical that each Head Start Health Coordinator and Health Services Advisory Committee be cognizant of the nonfinancial barriers in the local community. The Health Coordinator must be able to navigate the local system and facilitate access to care for Head Start families. The Health Services Advisory Committee should facilitate this process by opening communication with hospitals and clinics, as well as other community resources to link parents with child care, transportation, and other bridges to health care in their community. The Committee can lend organizational weight to the Health Coordinator in breaking down barriers to access. However, the success of the Head Start system in facilitating access to health care will be highly dependent on the willingness of the Head Start staff, the community, and the parents to overcome the challenges they face in obtaining proper health care. The interplay between Head Start proponents and community agencies will vary from center to center.

Additionally, the availability of adequate funding to recruit and retain qualified health

service professionals remains a critical variable in the success of the Head Start system (Zigler & Muenchow, 1992). Head Start grantees have reported that the presence of a Health Coordinator in the program whose credentials are recognized by the local medical community greatly facilitates access to services for children and their families (Brush et al., 1993).

## **1.5 Previous Health Evaluations of Head Start**

A study conducted by Abt Associates from 1979 to 1983 and reported in 1984 (Fosburg, 1984) included the random assignment of children to Head Start experimental and control groups, a full-scale physical examination of children, staff and parent interviews, and record reviews. In 1985, the Head Start Synthesis Project released a report containing an analysis and synthesis of 210 reports of research on the effects of local Head Start programs (McKey et al., 1985). Of those, 34 dealt with health or health services. No primary data collection was completed for that report, which involved the collection of over 1,600 documents related to Head Start. Three additional reports were released in 1993. The Office of the HHS Inspector General (OIG) completed a study involving interviews with Head Start staff in 80 programs and reviews of over 3,100 child health records, which was published in May 1993 (OIG, 1993). A prepublication version of a study by Zigler, Piotrkowski, and Collins also was made available in May 1993 (Zigler et al., 1994). This report is a summary of available data on health services in Head Start and employs data from the 1991–92 Program Information Reports (PIRs) and the On-site Program Review Instruments (OSPRI) available from 1991 and 1992. Finally, in June 1993, Pelavin Associates, Inc. prepared a report entitled *Indices of Head Start Program Quality* for the Head Start Bureau (Brush et al., 1993). That report described analyses of the PIRs from 1988 through 1992, the OSPRI from 1,044 programs submitted since 1991, and the Head Start Cost (HSCOST) data for 1,037 of the 1,341 potential grantees.

### **1.5.1 Effects of Head Start Health Services (Fosburg, 1984)**

In 1977, Abt Associates Inc. was commissioned to conduct an evaluation of the Head Start Health Component. This study used a longitudinal experimental design that involved the random assignment of children to either a Head Start or non-Head Start group. Conducted in four sites across the country, the study addressed the following questions:

- What is the health status of children before they enter the Head Start program?



- What medical, dental, and nutritional health services do they receive from Head Start?
- How do medical, dental, and nutritional services received by Head Start children compare with those received by children in the non-Head Start group?
- What are the effects of Head Start health services on the health status of Head Start children?

Although the methodology generally was sound, the researchers experienced serious operational problems, including differential attrition in the experimental and comparison groups. There were apparent diffusion effects, resulting in the comparison group receiving health services they normally might not have obtained. The findings of this study indicated that many children who enter the Head Start program have a number of remediable health problems that may require professional health care. In this study, the children who entered Head Start received many of the health services mandated by the Head Start Program Performance Standards and were more likely than non-Head Start children to receive preventive and remedial health services, including medical and dental examinations, nutrition, speech evaluation, and vision screenings. The information collected included a broad battery of data from physical examinations, nutritional observations, staff and parent interviews, and health record reviews. The results from physical examinations of children did not reveal significant differences between the experimental and comparison groups.

### **1.5.2 Head Start Synthesis Project (McKey et al., 1985)**

In 1985, CSR, Inc., conducted a study that is known as the Head Start Synthesis Project in a report officially entitled *Executive Summary: The Impact of Head Start on Children, Families, and Communities* (McKey et al., 1985). This project collected over 1,600 documents, both published and unpublished, that were subsequently analyzed and synthesized. Over 200 reports of research on the effectiveness of local Head Start programs also were reviewed. When possible, meta-analysis techniques were used to produce estimates of Head Start's effects on children's cognitive development, socioemotional development, and health, as well as on the families of Head Start children and the communities in which these programs operate. Meta-analysis, a systematic quantitative technique for integrating research findings, converts research findings into "effect sizes" that compare the performances of two groups (either a treatment and control group, or Head Start children before and after enrollment in the program) (Collins, 1990; McKey et al., 1985).

It was found that numerous studies of the success of Head Start have been conducted under both private and public auspices. These studies range widely in focus, design, and findings, and sample sizes vary from very few to several thousand. Wide variation exists in subjects' family income, ethnicity, and level of parental education and employment status. The majority of these studies tended to focus on children's cognitive performance. A few longitudinal studies were conducted to examine the effects of the Head Start program over time. A total of 34 research reports in the area of health care met the criteria for inclusion. As Gamble and Zigler (1989) noted, the project consists of two different kinds of reports. Few of the reports involve comparison groups, and, therefore, most either describe performance against a criterion such as the Head Start Program Performance Standards or differences noted between a pretest and a posttest (or observation). The conclusions of the Synthesis Project regarding the Health Component of the Head Start program included the following:

- Head Start programs are providing a range of health services to children who need them;
- Head Start participation appears to result in "meaningful improvement" in children's general physical health;
- Head Start has a meaningful, positive impact on children's motor coordination and development, especially among children with physical handicaps and developmental delays;
- Head Start children have higher protein, calorie, and essential nutrient intake than do non-Head Start children, but it is not clear that their home diets are better than those of non-Head Start children;
- According to two studies, Head Start children receive better dental care, have fewer cavities, and practice better dental hygiene than do non-Head Start children;
- Head Start programs generally meet or exceed the requirement that at least 10% of children be professionally diagnosed as handicapped; however, only a small proportion of these children are severely disabled;
- There does not appear to be a significant difference in the health behavior practices of Head Start parents as opposed to non-Head Start parents; and
- No useful studies have been conducted of the mental health outcomes of Head

Start participation on children or families.

The Head Start Synthesis Report noted that Head Start children had “a level of health comparable with more advantaged children” (McKey et al. 1985).

### **1.5.3 Evaluation of Performance Indicators (OIG, 1993)**

A more recent investigation of Head Start conducted by the OIG (1993) was based on several sources of information. First, a total of 80 grantees were selected for the study. Only programs receiving expansion funds were included. Next, program personnel were interviewed (by telephone or on-site visit) according to structured discussion guides. In addition to conducting interviews, the OIG staff reviewed records for over 3,100 children. Finally, the OIG identified 18 specific performance indicators reflecting, primarily, the Head Start Program Performance Standards. Six of the performance indicators were related to health services. The OIG found that the Program Information Report (PIR) data, which Head Start programs complete each year, tended to depict compliance more generously than did the on-site review, and that there were significant problems with record keeping and with obtaining health screening and follow-up treatments for all children. The OIG reported that only 43.5% of the Head Start children were “fully immunized as defined by ACYF guidelines” (OIG, 1993). However, a number of factors, including incongruent methods of record keeping and varying state-specific and age-specific immunization requirements, must be considered when interpreting the OIG findings.

With regard to the OIG results on the six health program indicators, deviations between the PIR information and the OIG record reviews were reported for the percentages of children that could be characterized as follows: those receiving medical screens; those with medical needs that received follow-up; those receiving dental screens; those with dental needs who received the needed treatment; and those who were fully immunized. The specific deviations were as follows:

- Ninety-two percent of the children received some medical screening versus 97% as reported on the PIRs, but only 52% received a complete medical screening (including growth, speech, and immunization);
- Seventy-six percent of the children had their medical needs completely met (and an additional 6% had their needs partially met) versus the 97% reported on the PIRs;

- Eighty-five percent of the children received a dental screening versus 95% as reported on the PIRs;
- Sixty-seven percent of the children had their dental needs completely met (and an additional 7% had their needs partially met) versus 95% reported on the PIRs; and
- Forty-four percent of the children were immunized up to the standard of ACYF's published guidance versus 88% as reported on the PIRs. The major reason for the discrepancy was conflict between ACYF's guidance to grantees on what constitutes complete immunization and the definition specified for the PIR form. If the PIR requirements were applied, then the OIG review would have found that 84% of the children were fully immunized.

Because of limitations in the OIG study methodology, there is a need for careful interpretation of these findings. Although the OIG report suggests problems in Head Start record keeping, conclusions on program compliance are presented as if the records were consistently maintained and as if requirements were standard for every child around the country. For example, the OIG findings of deficiencies in immunization compliance do not appear to consider the various requirements of States, the ages of children at their first immunization, and inconsistencies between the Head Start requirements and the PIR form itself. A related problem arises with the use of the family needs assessment data. The use of the Head Start Model Family Needs Assessment packet is suggested but not required; many centers use scaled-down versions of the assessment tool or assessment tools of their own creation. Therefore, as with immunizations, data are not available from a reliable or consistent source across centers.

#### **1.5.4 Health Services in Head Start (Zigler et al., 1994)**

A study by Zigler et al. (1994) contained a discussion of the historical context for Head Start health services, reviewed previous studies, and addressed the question of whether Head Start health services meet the Head Start Program Performance Standards. The study used two principal sources of information. The first source was the PIR, completed by all Head Start programs in June of each year; and the second was the Self-Assessment Validation Instrument or, in its more recent version, the OSPRI. Data from fiscal years 1991 and 1992 summarized the major areas of noncompliance with the Performance Standards that resulted from on-site multidisciplinary team visits using the OSPRI (or Self-Assessment Validation Instrument). The study found that:

- Ninety-one percent of Head Start children received complete nutritional screenings;
- Ninety-eight percent of children in Head Start were medically screened;
- Ninety-five percent of children received dental exams;
- Thirteen percent of children enrolled in Head Start had been diagnosed as having a disability (including mental retardation, health impairments, visual handicaps, hearing impairments, emotional disturbance, speech and language impairments, orthopedic handicaps, and learning disabilities);
- Almost 90% of Head Start children were fully immunized, and an additional 8% were up-to-date on their immunizations (these data were not seriously inconsistent with those reported by the OIG [discussed above]);
- Two percent of children enrolled in Head Start were referred for mental health treatment, with 77% of those referred receiving treatment; and
- Sixty-three percent of total actual Head Start enrollment in 1991 to 1992 were Medicaid-eligible, and 42% of the Head Start children received medical services at low or no cost to Head Start.

In addition, the Zigler paper described the results of a small-scale research project. Hale, Seitz, and Zigler (1990) examined the medical records of approximately 40 children enrolled in Head Start, 18 low-income children on a Head Start waiting list, and 20 children in a nursery school serving middle-class families. These groups of children were compared with regard to health screenings and dental examinations, and their medical records were examined for immunizations and pediatric checkups since birth. Findings were consistent with earlier studies. During the time they were in Head Start, the Head Start children were more likely than the waiting-list children to receive dental examinations (95% versus 39%) and age-appropriate health screenings. The Head Start children were significantly more likely than the waiting-list children to be screened for lead, Hematocrit, tuberculin, blood pressure, hearing, and vision. Thus, it appears that, for these low-income children, the formal Head Start health services delivery system made an important difference in their access to preventive care (Zigler et al., 1994).

Zigler et al. (1994) concluded that, despite complex issues affecting the Head Start Health Component, the overall set of findings from the studies confirmed that children

enrolled in Head Start experience far better access to health care, especially preventive services, than do children living in poverty who are not enrolled. Furthermore, Head Start assesses and meets the health needs of children to a much greater extent than State-funded preschool programs for disadvantaged children (Bell & Jones, 1993; Zigler et al., 1994).

### **1.5.5 Indices of Head Start Program Quality (Brush et al., 1993)**

In a recently published study, Brush et al. (1993) examined quality in Head Start comprehensive services, using three resident Head Start databases (PIR, OSPRI, and HSCOST). The study found that most grantees deliver extensive services and meet nearly all the Performance Standards for each component. In accordance with the 1992 PIR, the study found that:

- Ninety percent of children are eligible for Medicaid;
- Grantees completed medical screening on an average of 91% of enrolled children;
- Medical treatment was given to a mean of 97% of children who needed it;
- Ninety-six percent of children served by a grantee were up to date in their immunizations at the end of the year;
- Grantees completed dental screening on an average of 90% of enrolled children;
- Dental treatment was given to a mean of 96% of children who required it;
- Seventy-eight percent of grantees enrolled at least 10% of children with disabilities; and
- Grantees were able to provide special services to 97% of children with disabilities.

According to OSPRI results from 1991 to 1993, most grantees were meeting the medical and dental requirements for a high percentage of enrolled children (80% or more), but 50 to 150 grantees were unable to match that performance each year. The number of grantees not obtaining screenings and services for 80% of their children appeared to be increasing and was relatively higher for dental screenings. Further, grantees with larger enrollments (over 1,000) appeared to have particular difficulty in arranging dental services as needed for their

children. On other measures (for example, the total number of items out of compliance for health services and mental health services), an enrollment between 400 and 1,000 was related to the “best” performance. Finally, a more highly educated Health Coordinator was associated with optimal program performance in meeting health standards.

### **1.5.6 Limitations of the Data**

With regard to the latter three studies, caution is necessary in the interpretation of the findings and conclusions. The PIR is a self-report measure, and as such is subject to the problems inherent in this form of data collection. There is only a minimal amount of verification of the PIR data by the Head Start Bureau, through on-site monitoring visits conducted once every 3 years (although inconsistencies within reports are investigated). Therefore, there is no assurance that respondents completing the PIR form accurately understand all of the requirements for, and the intent of, particular questions. It is also possible for grantees to deflate or inflate their responses to improve their apparent compliance with the Head Start Program Performance Standards. The OSPRI is also a self-report assessment, which is supplemented once every 3 years by an administrative site visit. Because of the Head Start program’s minimal amount of verification and control over grantee reporting, the data from these instruments may be useful for program descriptions, but should be interpreted cautiously for program evaluation purposes.

## **1.6 Summary**

Across all studies concerned with the Head Start Health Component, a large body of evidence has been compiled that suggests that the great majority of Head Start children receive screenings, medical services, and dental services as required. There are, however, several concerns about implementation of the Health Component. First, a subset of grantees are experiencing significant difficulties in completely addressing the health needs of their children adequately. Second, problems with the organization, completeness, and accuracy of the record keeping and reporting of health data have been reported. Nevertheless, there is little information about several issues that would help interpret data about the actual delivery of health services. These issues include the following:

- Detailed information about barriers encountered by programs in the implementation of the health program requirements;

- The degree to which each barrier contributes to a reduced ability to deliver the appropriate range of health services;
- The degree to which confusion about the content and intent of the Head Start Program Performance Standards and their accompanying guidance contribute to difficulties in delivering and documenting the delivery of health services; and
- The degree to which the accuracy of record keeping contributes to apparent difficulties in meeting established standards.

Few studies have developed databases consisting of primary data sources. The most recent studies (Brush et al., 1993; OIG, 1993; Zigler et al., 1994) used existing records or computer files as basic information sources. Although each study indicated some level of deviation from the program requirements, the OIG review (1993) identified a greater frequency of discrepancies in the health records than either the PIR or OSPRI (although the OIG report did not, apparently, compare their record review findings with the PIR data submitted by the grantees involved in the study, but rather projected their weighted data to the universe of Head Start grantees and the data reported by ACYF for the year prior to the data collection). There may be several possible explanations for such discrepancies (for example, the OIG sampled only programs undergoing expansion, or the reported difficulty in locating on-site records may have contributed to the observed differences), but there is little doubt that additional on-site investigation of health services procedures and records are helpful in further understanding and defining the nature of the problems involved and in identifying the barriers that are most difficult for grantees to overcome.



## Bibliography

- Adams, P.F., & Hardy, A.M. (1989). *Current estimates from the National Health Interview Survey, United States, 1988*. Vital Statistics, Series 10, No. 173. Hyattsville, MD: National Center for Health Statistics.
- Aday, L.A., & Forthofer, R.N. (1992). A profile of African American and Hispanic subgroups' access to dental care: Findings from the National Health Interview Survey. *Journal of Public Health Dentistry*, 52(4), 210-5.
- Administration for Children and Families. (1991). *Information memorandum: Medicaid/EPSDT*. Washington, DC: Head Start Bureau.
- Agrons, G.A., Markowitz, R.I., & Kramer, S.S. (1993). Pulmonary tuberculosis in children. *Seminars in Roentgenology*, 28(2), 158-172.
- Barger, S.E. (1993). The delivery of early and periodic screening, diagnosis and treatment program services by NPs in a nursing center. *Nurse Practitioner*, 18(6), 65-68.
- Barnes, G.P., Parker, W.A., Lyon, T.C., Drum, M.A., & Coleman, G.C. (1992). Ethnicity, location, age, and fluoridation factors in baby bottle tooth decay and caries prevalence of Head Start children. *Public Health Reports*, 107(2), 167-173.
- Bell, K.N., & Jones, J.E. (1993). *Future directions for the Head Start Health Component*. New York: National Center for Children in Poverty, Columbia University.
- Binder, S., & Matte, T. (1993). Childhood lead poisoning: The impact of prevention. *Journal of the American Medical Association*, 269(13), 1679-1681.
- Brush, L., Gaidurgis, A., & Best, C. (1993). *Indices of Head Start program quality*. Administration on Children, Youth and Families. Washington, DC: Pelavin Associates.
- Cartland, J.D.C., & Yudkowsky, B.K. (1992). Barriers to pediatric referral in managed care

- systems. *Pediatrics*, 89, 183-92.
- Centers for Disease Control. (1990). Measles — US, 1989 and first 20 weeks, 1990. *Morbidity and Mortality Weekly Report*, 39(21), 353-363.
- Centers for Disease Control. (1991). *Preventing Lead Poisoning in Young Children: A Statement by the Centers for Disease Control*. Atlanta, GA: U.S. Department of Health and Human Services.
- Centers for Disease Control and Prevention. (1993). *HIV/AIDS Surveillance Report*, 5(2), 9.
- Chao, J., & Kikano, G.E. (1993). Lead poisoning in children. *American Family Physician*, 47(1), 113-120.
- Children's Defense Fund. (1991). *The State of America's Children, 1991*. Washington, DC.
- Collins, R.C. (1990). *Head Start research and evaluation: A blueprint for the future*. Recommendations of the Advisory Panel for the Head Start Evaluation Design Project. Vienna, VA: Collins Management Consulting.
- Community Childhood Hunger Identification Project. (1991). *A survey of childhood hunger in the United States*. Washington, DC: Food Research and Action Center.
- Cornelius, L.J. (1993). Barriers to medical care for White, African American, and Hispanic American children. *Journal of the National Medical Association*, 85(4), 281-288.
- Estrada, A.L., Trevino, F.M., & Ray, L.A. (1990). Health care utilization barriers among Mexican Americans: Evidence from HHANES 1982-84. *American Journal of Public Health*, 80, 27-31.
- Feldman, R.G., & White, R.F. (1992). Lead toxicity and disorders of learning. *Journal of Child Neurology*, 7(4), 354-359.
- Figures, C. (1977). *Report of early childhood programs health services: 1976-77*. Philadelphia, PA: Office of Research and Evaluation, Philadelphia School District.

- Fosburg, L.B. (1984). *The effects of Head Start health services: Executive summary of the Head Start health evaluation*. A Report for the Administration on Children, Youth, and Families. Cambridge, MA: Abt Associates.
- Fowler, M.G., Simpson, G.A., & Schoendorf, K.C. (1993). Families on the move and children's health care. *Pediatrics*, 91(5), 934-40.
- Gamble, T.J., & Zigler, E. (1989). The Head Start Synthesis Project: A critique. *Journal of Applied Developmental Psychology*, 10, 267-274.
- General Accounting Office. (1990). *Drug-exposed Infants: A generation at risk*. Washington, DC.
- Gould, M.S., Wunsch-Hitzig, R., & Dohrenwend, B. (1981). Estimating the prevalence of childhood psychopathology: A critical review. *Journal of the American Academy of Child Psychiatry*, 20(3), 462-476.
- Guthrie, A.M., & McNulty, M. (1993). *Making the most of Medicaid: State progress in childhood lead poisoning prevention*. Washington, DC: Alliance to End Childhood Lead Poisoning.
- Hale, B.A., Seitz, V., & Zigler, E. (1990). Health services and Head Start: A forgotten formula. *Journal of Applied Developmental Psychology*, 11, 447-458.
- Halfon, N., & Newacheck, P.W. (1993). Childhood asthma and poverty: differential impacts and utilization of health services. *Pediatrics*, 91(1), 56-61.
- Hayes-Bautista, D.E. (1979). Coaches, arbitrators, and access to medical care. *Journal of Health and Social Behavior*, 20(3), 52-60.
- Hayes-Bautista, D.E. (1992). Latino health indicators and the underclass model: From paradox to new policy models. In A. Furino, (Ed.). *Health policy and the Hispanic*. Boulder, CO: Westview Press.
- Head Start Bureau. (1992). *Head Start program performance standards (45-CFR 1304)*.

DHHS Publ. No. (ACF)92-31131. Washington, DC: U.S. Government Printing Office.

Hertzig, M.E. (1992). Mental health and developmental problems of children in poverty.

*Bulletin of the New York Academy of Medicine*, 68(1), 25-31.

Hill, I.T. (1992). The role of medicaid and other government programs in providing medical care for children and pregnant women. *The Future of Children*, 2(2), 134-153.

Himes, J.H., Story, M., Czaplinski, K., & Dahlberg-Luby, E. (1992). Indications of early obesity in low income Hmong children. *American Journal of Diseases of Children*, 146(1), 67-9.

Horwitz, S.M., & Stein, R.E.K. (1990). Health Maintenance Organizations vs. indemnity insurance for children with chronic illness: Trading gaps in coverage. *American Journal of Diseases of Children*, 144, 581-86.

Hutchins, S.S., Gindler, J.S., Atkinson, W.L., & Mihalek, E. (1993). Preschool children at high risk for measles: Opportunities to vaccinate. *American Journal of Public Health*, 83(6), 862-7.

Jones, D.B., Schlife, C.M., & Phipps, K.R. (1992). An oral health survey of head start children in Alaska: Oral health status, treatment needs, and cost of treatment. *Journal of Public Health Dentistry*, 52(2), 86-93.

Kaste, L.M., Marianos, D., Chang, R., & Phipps, K.R. (1992). The assessment of nursing caries and its relationship to high caries in the permanent dentition. *Journal of Public Health Dentistry*, 52(2), 64-68.

Katz, L., Ripa, L.W., & Petersen, M. (1992). Nursing caries in Head Start children, St. Thomas, U.S. Virgin Islands: Assessed by examiners with different dental backgrounds. *The Journal of Clinical Pediatric Dentistry*, 16(2), 124-128.

Klerman, L. (1992). Nonfinancial Barriers to the Receipt of Medical Care. *The Future of Children*, 2(2), 171-185.

- Larson, C.S. (1991). Overview of State legislative and judicial responses. *The Future of Children*, 1(1), 72-84.
- Levin, A.C., Gums, J.G., & Grauer, K. (1993). Tuberculosis: The primary care physician's role in eradication. *Postgraduate Medicine*, 93(3), 46-60.
- Louie, R., Brunelle, J., Maggiore, E.D., & Beck, R.W. (1990). Caries prevalence in Head Start children, 1986-1987. *Journal of Public Health Dentistry*, 50(5), 299-305.
- Mahaffey, K.R., Annest, J.L., Roberts, J., & Murphy, R.S. (1982). National estimates of blood lead levels: United States, 1976-1980: Association with selected demographic and socioeconomic factors. *New England Journal of Medicine*, 307(10), 573-579.
- McKey, R.H., Condelli, L., Ganson, H., Barrett, B.J., McConkey, C., & Plantz, M.C. (1985). *Executive summary: The impact of Head Start on children, families, and communities*. Head Start Synthesis Project. Washington, DC: U.S. Government Printing Office.
- McNight-Hanes, C., Myers, D.R., & Dushku, J.C. (1992). Method of payment for children's dental services by practice type and geographic location. *Pediatric Dentistry*, 14(5), 338-41.
- Monheit, A.C., and Cunningham, P.J. 1992. Children Without Health Insurance. *The Future of Children*, 2(2), 154-170.
- Mushak, P. (1992). Defining lead as the premiere environmental health issue for children in America: Criteria and their quantitative application. *Environmental Research*, 59(2), 281-290.
- Nanda, D., Feldman, J., Delke, I., Chintalapally, S., and Minkoff, H. (1990). Syphilis among parturients at an inner city hospital: association with cocaine use and implications for congenital syphilis rates. *New York State Journal of Medicine*, 90(10), 488-90.
- Office of Inspector General. (1993). *Evaluating Head Start expansion through performance indicators*. Washington, DC: Department of Health and Human Services.

- Office of Technology Assessment. (1986). *Children's mental health: Problems and services — a background paper*. Washington, DC: U.S. Government Printing Office.
- Pamuk, E.R., & Mosher, W.D. (1988). *Health aspects of pregnancy and childbirth: United States, 1982*. Vital and Health Statistics Series 23, No. 16. Hyattsville, MD: National Center for Health Statistics.
- Pizzo, P.D. (1993). *Head Start and health*. New Haven, CT: Yale University Press.
- Public Health Service. (1991). *Healthy People 2000: National health promotion and disease prevention objectives*. DHHS Pub. No. (PHS)91-50212. Washington, DC: U.S. Government Printing Office.
- Rice, D.P. (1989). *Cost of injury in the United States. A report to Congress*. Atlanta, GA: Centers for Disease Control.
- Riley, A.W., Finney, J.W., Mellits, E.D., Starfield, B., Kidwell, S., Quaskey, S., Cataldo, M.F., Filipp, L., & Shematek, J.P. (1993). Determinants of children's health care use: An investigation of psychosocial factors. *Medical Care*, 31(9), 767-783.
- Rosenbaum, S. (1992). Child health and poor children. *American Behavioral Scientist*, 35(3), 275-289.
- Rosenbaum, S., Hughes, D.C., Butler, E., and Howard, D. (1988). Incantations in the dark: Medicaid, managed care and maternity care. *The Milbank Quarterly*, 66, 661-93.
- Ruff, H.A., Bijur, P.E., Markowitz, M., Yeou-Cheng, M., & Rosen, J.F. (1993). Declining blood levels and cognitive changes in moderately lead-poisoned children. *Journal of the American Medical Association*, 269 (13), 1641-1646.
- Sanders-Phillips, K. (1990). *A health promotion/disease prevention model for Head Start families*. Paper presented at "New directions in child and family research: Shaping Head Start in the 90's." Administration on Children, Youth, and Families. Washington, DC, June 24-26.

- Scott, M.M. (1993). *Improving services to children and families through use of a systems approach to child development*. Paper presented at "Translating research into practice: Implications for serving families with young children." The 2nd national Head Start research conference. Washington, DC, November 4-7.
- Stansberry, S.D. (1990). Tuberculosis in infants and children. *Journal of Thoracic Imaging*, 5(2), 17-27.
- Starfield, B. (1992). Effects of poverty on health status. *Bulletin of the New York Academy of Medicine*, 68(1), 17-24.
- Szilagyi, P.G., Rodewald, L.E., Humiston, S.G., Raubertas, R.F.; Cove, L.A., Doane, C.B., Lind, P.H., Tobin, M.S., Roghmann, K.J., & Hall, C.B. (1993). Missed opportunities for childhood vaccinations in office practices and the effect on vaccination status. *Pediatrics*, 91(1), 1-7.
- Wardle, F., & Winegarner, N. (1992). Nutrition and Head Start. *Children Today*, 21(1), 5-7.
- Weikart, D. (1987). Research and Related Issues: Interactive Instructional Model. *Appropriate Programs for Four-Year-Olds*. Memphis: Memphis State University.
- Werner, E.E., & Smith, R.S. (1989). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: Adams, Bannister, Cox.
- White House Domestic Policy Council. (1993). *The President's health security plan: The Clinton blueprint*. New York: Times Books.
- Yip, R., Scanlon, K., & Trowbridge, F. (1993). Trends and patterns in height and weight status of low-income U.S. children. *Critical Reviews on Food Science and Nutrition*, 33(4-5), 409-421.
- Yudkowsky, B.K., Cartland, J.D., & Flint, S.S. (1990). Pediatrician participation in Medicaid, 1978 to 1989. *Pediatrics*, 85(4), 567-577.
- Zeitlin, M. (1991). Nutritional resilience in a hostile environment. *Nutrition Review*, 49(9),

259-268.

Zigler, E., & Muenchow, S. (1992). *Head Start: The inside story of america's most successful educational experiment*. New York: Basic Books.

Zigler, E., Piotrkowski, C.S., & Collins, R. (1994). Health services in Head Start. *Annual Review of Public Health*, 15, 511-534.

Zigler, E., & Styfco, S.J. (1993). An earlier Head Start: Planning an intervention program for economically disadvantaged families and children ages zero to three. *Zero to Three*, 14(2), 25-28.

Zill, N., & Schoenborn, C.A. (1990). *Developmental, learning, and emotional problems: Health of our nation's children, United States, 1988*. DHHS Publ. No. (PHS) 91-1250. Hyattsville, MD: National Center for Health Statistics.

Zuckerman, B., Frank, D.A., Hingson, R., Amaro, H., Levenson, S.M., Kayne, H., Parker, S., Vinci, R., Aboagye, K., Fried, L.E., Cabral, H., Tinperi, R., & Bauchner, H. (1989). Effects of maternal marijuana and cocaine use on fetal growth. *New England Journal of Medicine*, 320(12), 762-768.